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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,116	01/24/2006	Akihisa Inoue	OGOSH44USA	3700

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EXAMINER	
ZHU, WEIPING	

ART UNIT	PAPER NUMBER
1793	

NOTIFICATION DATE	DELIVERY MODE
05/19/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@howsonandhowson.com

Office Action Summary	Application No.	Applicant(s)	
	10/566,116	INOUE ET AL.	
	Examiner	Art Unit	
	WEIPING ZHU	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 February 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,3,14,20-25 and 37-44* is/are pending in the application.

4a) Of the above claim(s) *21-25* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2, 3, 14, 20 and 37-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. Claims 2, 3, 14, 20 and 37-44 are currently under examination, wherein claims 2 and 37 have been amended and claims 41-44 have been newly added in applicant's amendment filed on February 16, 2010. Claims 15-19 have been cancelled in the same amendment.

Status of Previous Rejections

2. The previous rejections of claims 2, 3, 14, 20 and 37-40 under 35 U.S.C. 103(a) as stated in the Office action dated October 14, 2009 are maintained as follows:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 2, 3, 14, 20, 37, 38 and 42-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fan et al. ("Deformation Behavior of Zr-Based Bulk Nanocrystalline Amorphous Alloys", Physical Review B, volume 61, number 6, R3761-R3763, February 1, 2000-II) in view of Nate et al. (US 4,992,059).

Claims 2, 3, 14, 20, 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fan et al. ("Deformation Behavior of Zr-Based Bulk Nanocrystalline Amorphous Alloys", Physical Review B, volume 61, number 6, R3761-R3763, February

1, 2000-II) in view of Nate et al. (US 4,992,059) as stated in the Office action dated October 14, 2009.

With respect to the amended features of the instant claims 2 and 37, Fan et al. in view of Nate et al. ('095) discloses a sintered body target structure (Nate et al. ('095), col. 1, lines 18-35 and col. 2, line 31 - col. 4, line 68) of a Zr-based bulk nanocrystalline amorphous alloy $Zr_{53}Ti_5Ni_{10}Cu_{20}Al_{12}$ having an average grain size range of 2.0-2.5 nm being uniform entirely throughout the specimen (Fan et al., abstract and the paragraph bridging the left and right columns and Fig. 2, page R3762).

With respect to the newly added claim 42, the Ni, Cu and Al contents in the sintered body target structure of a Zr-based bulk nanocrystalline amorphous alloy $Zr_{53}Ti_5Ni_{10}Cu_{20}Al_{12}$ of Fan et al. in view of Nate et al. ('095) are 5 at.% or more.

With respect to the newly added claim 43, the sintering temperature limitation is a process limitation in a product claim. Even through product claims are limited by and defined by the process, determination of patentability is based on the product itself. Fan et al. disclose an amorphous metallic glass (abstract), which reasonably appear to be only slightly different than the claimed metallic glass in the instant claim 37. A rejection based on section 103 of the status is eminently fair and acceptable. See MPEP 2113.

With respect to the newly added claims 44, Fan et al. in view of Nate et al. ('095) does not specify the claimed surface roughness of the metallic glass sputtering target after sputtering is performed. However, it has been well held where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of

either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977), MPEP 2112.01 [R-3] I. In the instant case, the claimed and Fan et al. in view of Nate et al. ('095)'s sputtering targets are identical or substantially identical in structure or composition and are produced by identical or substantially identical processes as discussed above, therefore a prima facie case of obviousness exists. The same roughness as claimed in the instant claim 44 would be expected in the sputtering target of Fan et al. in view of Nate et al. ('095) as in the claimed sputtering target.

4. Claims 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fan et al. in view of Nate et al. ('095) as applied to claims 2 and 37 above and further in view of Kakiuchi et al. ("Application of Zr-Based Bulk Glassy Alloys to Golf Clubs", Materials Transactions, Vol. 4, No. 4 (2001) pp. 678 to 681).

Claims 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fan et al. in view of Nate et al. ('095) as applied to claims 2 and 37 above and further in view of Kakiuchi et al. ("Application of Zr-Based Bulk Glassy Alloys to Golf Clubs", Materials Transactions, Vol. 4, No. 4 (2001) pp. 678 to 681) as stated in the Office action dated October 14, 2009.

With respect to the newly added claim 41, Fan et al. in view of Nate et al. ('095) and further in view of Kakiuchi et al. discloses that the content of Zr in the sintered body target structure of a Zr-based bulk nanocrystalline amorphous alloy $Zr_{60}Al_{10}Ni_{10}Cu_{20}$ is 60 at.%, which is close to the claimed lowest content of 65 at.%.

Response to Arguments

5. The applicant's arguments filed on February 16, 2010 have been fully considered but they are not persuasive.

First, the applicant argues that Nate et al. ('095) discloses nothing relative to compression tests of amorphous material and rather discloses entirely different composition, microstructures and manufacturing method. In response, the examiner notes that Nate et al. ('095) discloses amorphous materials can be formed into sputtering targets by sintering powders of desired compositions (col. 1, lines 18-35 and col. 2, line 31 - col. 4, line 68), which is the only teaching relied upon to establish the rejection ground of the claimed limitation of a sintered target structure. The ground of rejection of the claimed composition of the alloy relies on the teachings of Fan et al. rather than the teachings of Nate et al. ('095). The motivation to combine Fan et al. and Nate et al. ('095) as stated in the Office action dated October 14, 2009 is proper and therefore maintained.

Second, the applicant argues that Fan et al. in view of Nate et al. ('095) does not disclose the claimed microstructure. In response, see the reason for the rejection of the amended features in the instant claims 2 and 37 above.

Third, the applicant argues that the metallic alloy disclosed by Fan et al. having a small fraction of nanocrystals embedded in an amorphous does not provide a uniform crystal structure and includes only a small fraction of fine particles embedded and separated from one another in an otherwise amorphous material and the "glass transition" cannot be observed in the metallic alloy of Fan et al.. In response, the examiner notes that the instant claims do not recite either the limitation of the fraction of

the crystallites or the limitation that the crystallization will advance only after reaching a temperature that is higher than the glass transition point. The metallic alloy disclosed by Fan et al. meet all the claimed limitations as discussed above.

Fourth, the applicant argues that the instantly claimed metallic glass can provide unexpected results in terms of that the surface roughness remaining small after sputtering. In response, see the reason for the rejection of the roughness feature as claimed in the instant claim 44 above.

Fifth, the applicant argues that Nate et al. ('095) does not disclose that the amorphous materials can be formed into sputtering targets by sintering powders of desired compositions (col. 1, lines 18-35 and col. 2, line 31 - col. 4, line 68). In response, the examiner notes that Nate et al. ('095) clearly discloses that amorphous alloys (i.e. claimed metallic glass) such as Tb-Fe-Co or Gd-Tb-Fe are useful materials in making magneto-optical memories; a thin film of such amorphous alloy can be made by a sputtering method; and the sputtering targets can be made by sintering powders of such amorphous alloys ((col. 1, lines 18-35, col. 2, line 31 - col. 4, line 68 and Table 1).

Sixth, the applicant argues that the Zr-based amorphous alloy group cannot be acknowledged as mutually having the same properties and being able to provide the same functions. In response, the examiner notes that Kakiuchi et al. discloses that Zr-Al-Ni-Cu and Zr-Ti-Al-Ni-Cu metallic glassy alloys have been principle materials for basic research and application studies for golf clubs and that the metallic glassy alloys of $Zr_{60}Al_{10}Ni_{10}Cu_{20}$, which is close to the claimed $Zr_{65}Cu_{17.5}Ni_{10}Al_{7.5}$, and $Zr_{58}Ti_2Al_{10}Ni_{10}Cu_{12}$, which is close to the $Zr_{53}Ti_5Ni_{10}Cu_{20}Al_{12}$ of Fan et al. in view of Nate

et al. ('095), have similar properties (sections 1 and 2, Table 1, pages 678 and 679), suggesting these materials would all meet the property and functional requirements of golf clubs. Therefore, the ground of rejections of the instant claims 39 and 40 as stated in the Office action dated October 14, 2009 is proper and therefore maintained.

Conclusion

6. **THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Weiping Zhu whose telephone number is 571-272-6725. The examiner can normally be reached on 8:30-16:30 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Roy King/
Supervisory Patent Examiner, Art Unit 1793

WZ

5/10/2010